REMARKS

Claims 1 to 22 were pending in the present application. Applicant has cancelled claims 1 to 22 without prejudice to the filing of any continuing or related applications, and has added new claims 23-42, which are now pending. Support for news claims can be found in the specification. In particular, the concept that fragments or derivatives of the nucleic acids of the invention encode a polypeptide that has the biological activity of side-shoot formation, petal formation, and abscission zone formation is supported, for example, at page 11, lines 11 to 14. The remaining amendments are supported by the original claims. Applicant has also amended the specification on pages 8-9 to insert the appropriate SEQ ID NOs. These amendments and new claims add no new matter.

Applicant has also amended original FIGS. 5 to 8 by inserting SEQ ID NOs. next to the appropriate sequences, and by separating Figures 5 and 6, which have two sheets each, into Figures 5A and 5B and 6A and 6B. These amendments also add no new matter.

Applicant acknowledges the Examiner's conclusion that claims 3 and 14 are free of the prior art, given the failure of the prior art to teach or fairly suggest SEQ ID NO:1 or the isolated *Ls* gene from tomato, and use of ribozymes with the nucleic acid molecule of claim 1 to suppress side-shoot, petal, or abscission zone formation. However, given the present amendments and comments, applicant believes that all of the new claims are allowable.

Restriction

Applicant confirms the election of Group I, claims 1 to 3 and 5 to 22. New claims 23 to 42 follow the language and content of original claims 1 to 3 and 5 to 22.

Specification/Claim Objections

Applicant has amended the drawings and application to include SEQ ID NOs. The claims have been amended to remove non-elected SEQ ID NOs.

The Examiner has objected to claim 2 under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim (Office Action, p. 3). Specifically, the Examiner pointed out that claim 2 attempts to limit parent claim 1 by

indicating that the hybridizing nucleotide sequences hybridize under stringent conditions. Applicant herewith submits new claim 24, which recites "high stringency conditions." As the Examiner has noted "it is well known in the art that hybridization can be conducted at low, moderate, and high stringencies" (Office Action at page 3). Accordingly, applicant respectfully requests that the Examiner withdraw the present objections to the claims.

35 U.S.C. § 101

Claims 1-3 have been rejected because the claimed invention is allegedly directed to non-statutory subject matter. According to the Office Action, the claims "read on a nucleic acid molecule per se which can be found in nature and thus, is unpatentable to applicant. It is suggested that applicant use the language 'isolated' or 'purified' in connection with nucleic acid molecule to identify a product that is not found in nature" (Office Action at page 4).

Applicant has included the word "isolated" in new claim 23. Accordingly, withdrawal of this rejection is respectfully requested.

35 U.S.C. § 112, Second Paragraph

Claims 1 and 5-22 have been rejected as being allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant submits that the new claims address each of these rejections, if warranted, and applicant addresses the rejections of individual terms as follows.

According to the Office Action, the terms "derivative," "stringent conditions," and "controlled" are indefinite. Applicants respectfully disagree for the following reasons. First, the term "derivative" appears in new claim 23. The Office Action states that the term "derivative" renders the claims indefinite, i.e., "it is not clear how this derivative differs from SEQ ID NO:1," and "it is not clear what this derivative is" (Office Action, p. 4). Applicant submits that the term "derivative" appears multiple times in the specification, has a standard accepted meaning in the biological sciences, and is defined as including sequences derived from SEQ ID NO:1 by "insertion, deletion, or substitution." See, e.g., page 21, lines 7-11. The new claims also state the derivatives must encode a polypeptide having the biological activity of side-shoot formation,

petal formation, and abscission zone formation. Applicants submit that this language clearly defines the claimed subject matter.

The term "high stringency conditions" appears in new claim 24. Applicants submit that this term meets the Examiner's suggestion.

The term "controlled" does not appear in any of the new claims. Therefore, the rejection of the use of the term "controlled" is rendered moot. Next, the Office Action states that claim 10 and dependent claims 11-20 are indefinite because there is allegedly a lack of agreement between the preamble of the claim and the positive method steps. According to the Office Action, the last step in the claim does not indicate that the plant is in any way altered from a non-transformed plant. Applicant submits that the new claims directed to a method for generating a plant are claimed in a manner that shows agreement between the claim preamble and the method steps.

Claim 15 has also been rejected as allegedly indefinite. Applicant submits that the claim as originally filed was proper, but has revised this claim somewhat to create new claim 38.

For the foregoing reasons, applicant requests that the Examiner withdraw the rejections under 35 U.S.C. § 112, second paragraph, and not apply these rejections to the new claims.

35 U.S.C. § 112, First Paragraph

Claims 1, 2, and 5 to 22 have been rejected as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant traverses this rejection for the following reasons.

The Office Action states, inter alia, "[g]iven the breadth of the claims encompassing fragments or derivatives of SEQ ID NO:1, and nucleic acid molecules that hybridize to SEQ ID NO:1 at any stringency condition, and which do not encode all of the functional properties of SEQ ID NO:1, and the lack of written description..., the specification fails to provide an adequate written description of the multitude of nucleic acid molecules encompassed by the claims" (Office Action, p. 8).

Applicant respectfully disagrees with respect to the new claims. First, applicant has drafted the new claims such that a nucleic acid that hybridizes with SEQ ID NO:1 or a complementary nucleic acid, must encode a polypeptide having the biological activity of side-

shoot formation, petal formation, and abscission zone formation. Such nucleic acids are clearly described in the application.

Second, the Office Action states, "[o]ne skilled in the art then cannot correlate the structure of the claimed nucleic acid molecule [with] their function in mediating one or two of side-shoot, petal, and abscission zone formation" (Office Action, p. 7). Applicant has amended the claims such that any of the claimed nucleic acid molecules must encode a polypeptide having the biological activity of side-shoot formation, petal formation, **and** abscission zone formation. This language is also supported in the application. For example, the application describes complementation experiments employing an *Ls* mutant transformed with various cosmid clones (see Figure 3) to make transgenes expressing observable phenotypes, including the formation of side shoots, abscission zones, and petals (see, e.g., p. 15, line 1, to page 17, line 13).

Furthermore, applicant has employed, and described in the application, the use of complementation experiments using subfragments of cosmid G (containing the *Ls* gene; Figure 3) and subsequent DNA mapping analysis to determine that particular base pair deletions (see p. 16, line 22, to p. 17, line 2) or insertions or point mutations (p. 17, lines 3-13) that contribute to an altered phenotypic appearance (see also Example 5 on p. 26, beginning on line 25). The application also describes the use of the *Ls* constructs (in an antisense orientation within the vectors) to suppress the formation of side shoots (see, Example 6 on p. 28, beginning at line 4).

The Office Action notes that the phenotypes of applicant's transgenic plants cannot be determined (at page 9). In Example 6 (at page 28), applicant used both sense and antisense constructs. The antisense construct was used to create transgenic plants, and these plants showed a reduction of side-shoot formation (see, page 28, lines 26-27). The sense construct was used more as a control in this experiment. As for the Office's comments regarding ribozymes, applicant has not claimed ribozymes in the new claims, but reserves the right to claim ribozymes in future, e.g., continuation, applications.

For the foregoing reasons, applicant submits that the specification provides an adequate written description for the claimed invention at the time the application was filed. Accordingly, applicant requests that the Examiner withdraw the rejection under § 112, first paragraph, and not apply this rejection to the new claims.

Claims 1, 2, and 5 to 22 have also been rejected as allegedly containing subject matter that is not enabled by the specification. According to the Office Action, "[g]iven the breadth of the claims encompassing nucleic acid fragments involved in only one or two rather than all three of side-shoot formation, petal formation, and abscission zone formation, fragments and derivatives of SEQ ID NO: 1, control of side-shoot, petal and abscission zone formation of plants by introduction of said nucleic acid fragments, and suppression of side-shoot, petal, and abscission zone formation using ribozymes, unpredictability of the art and lack of guidance of the specification as discussed above, undue experimentation would be required by one skilled in the art to make and use the claimed invention" (Office Action, p. 10-11). The Office Action also notes that the specification does not provide guidance for "developing fragments or derivatives of SEQ ID NO:1 that retain its functional activities" and further that without such guidance "one would be left to randomly make any number of fragments of any length and assay them for retention of functional activity" (Office Action, p. 9). Applicant respectfully submits that the present claims meet the requirements for enablement under Section 112, first paragraph.

First, the application provides numerous details to support the claimed invention. For example, the application describes a portion of the known RFLP genetic map that integrates the *Ls* region in Figure 2. Figure 3 shows the mapping of the cDNA and the cosmid clones derived from the *Ls* region, the positions of the exemplary cosmid clones and cDNA clones and the recombination sites in the resulting F2 plants. Applicant utilized this information as a context for disclosing how to isolate clones comprising *Ls* sequences (and fragments and derivatives thereof) by, for example: preparing a high resolution genetic map, transforming the physical map into a number of overlapping clones spanning the gene to be isolated, e.g., the *Ls* gene (p. 13, lines 18-26, and see Example 1, p. 23, line 18); isolating the cDNA clone from the *Ls* region (Example 2, p. 24, line 8); performing RFLP mapping of the isolated cDNA clones (Example 3, p. 25, line 1); and using the clone as a radiolabeled probe to screen a genomic cosmid library (Example 4, p. 26, line 1).

Once the *Ls* genes are cloned and sequenced (see Example 5, p. 26, line 26), these *Ls* cDNA constructs can be used to transform, e.g., a plant, to observe any resulting phenotypic modifications. Furthermore, applicant has disclosed that prior to transformation of the organism, the cDNA construct can be manipulated to include a nucleic acid placed in a sense or antisense

orientation (see Example 6, beginning at p. 28, line 4). In addition, the application indicates that the fragments and derivatives must have a sequence identity of from 50 to 100% (see, e.g., page 19, lines 10-12) and that these fragments and derivatives are created by insertion, deletion, or substitution (see, e.g., page 21, lines 7-13), and that they must encode polypeptides that have the biological activity of side-shoot formation, petal formation, and abscission zone formation (see, e.g., page 11, lines 7-14).

Using the above-described procedures, applicant has described the reduction of side shoot formation in, e.g., a tomato plant using the described *Ls* antisense construct (Example 6). Furthermore, applicant has utilized the disclosed methods to successfully determine the presence of homologous *Ls* genes in other plant species (p. 17, line 14, to p. 18, line 8). Taken together, because the specification provides sufficient guidance by teaching that the *Ls* gene is involved in the formation of side-shoots, as well as petals and abscission zones, and further discloses how to prepare and isolate clones and develop cosmids containing SEQ ID NO:1 (as well as fragments or derivatives thereof) for subsequent transformation, one can then ascertain the resulting plant phenotype produced by a particular *Ls* gene-derived sequence without undue experimentation.

Given the information and sequences provided in the application, any additional work required to prepare fragments or derivatives may involve a certain amount of time, but can be carried out using only routine procedures. The courts have long held that "undue experimentation" is not measured merely in time, but in the requirement of additional information or invention. See, e.g., In re Wands, 858 F.2d 731, 736-737 (Fed. Cir. 1988), in which the Federal Circuit stated, "[e]nablement is not precluded by the necessity for some experimentation such as routine screening." The court, quoting earlier cases, also noted "[t]he test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed (emphasis added)."

In the present case, not only would any experimentation required to make and test the claimed fragments and derivatives be merely routine, but the application provides ample guidance as to how to make and test these nucleic acids as well.

Finally, the Examiner states that the specification fails to disclose how to describe how to use a ribozyme (Office Action, p. 10). At present, applicant has cancelled any reference to

ribozymes in the claims. This is without prejudice to claiming the use of ribozymes feature in future, e.g., continuation, applications.

For the foregoing reasons, applicant submits that the specification provides sufficient guidance to enable one to make and/or use the presently claimed invention. Accordingly, applicant requests that the Examiner withdraw rejection under Section 112, first paragraph, and not apply this rejection to the new claims.

35 U.S.C. § 102

Claims 1, 2, 5-10, 16, 17, 19, and 21 have been rejected as allegedly anticipated by Mandel et al. Applicant traverses this rejection for the following reasons.

According to the Office Action, Mandel describes transgenic plants transformed with a vector comprising the AP1 gene. Time of flowering (and therefore petal formation) is accelerated in the transgenic plants (page 523). The Office Action also alleges that the AP1 gene would hybridize to SEQ ID NO:1 "under the appropriate stringency condition," but there is no factual support for this assertion. Absent this support, applicant submits that the Office has failed to establish a proper rejection of anticipation, because the present claims clearly require specific nucleic acid sequences that are different than the AP1 gene.

Furthermore, Mandel states that ectopic AP1 expression is sufficient to convert inflorescence shoots into flowers (p. 522, col. 2; Fig. 1 and Fig. 2) or the conversion of inflorescence meristems into floral meristems (p. 523, col. 1). AP1 is also said to influence the vegetative phase of plant growth (p. 523, col. 2). Thus, the AP1 gene confers an influence only over the timing of floral expression and not the physical manifestation of such floral expression, including petal formation. Because Mandel fails to show how AP1 gene function is related to the known functions of the Ls gene (e.g., SEQ ID NO:1 or fragments or derivatives thereof), Mandel simply cannot anticipate applicant's presently claimed invention. In addition, Mandel fails to disclose any nucleic acid sequence of the AP1 gene, in whole or in part, thus it is unclear how AP1 can hybridize (if at all) with the claimed SEQ ID NO:1.

For the foregoing reasons, applicant respectfully requests that the Examiner withdraw the anticipation rejection in view of Mandel, and not apply this rejection to the new claims.

Claims 1, 2, 5-12, 19, and 21 have also been rejected as allegedly anticipated by Savin et al. Applicants traverse this rejection for the following reasons.

The Office Action states, "Savin et al. teach transgenic carnation plants transformed with a vector that expresses antisense ACO RNA. The transformed plants exhibit delayed petal senescence (pages 970-971)" (at p. 12-13). The Office Action further asserts that "the ACO gene would hybridize to SEQ ID NO: 1 of the instant invention under the appropriate stringency condition" (at p. 13). Again, this assertion is without any factual support. There is simply no evidence that the ACO gene would hybridize to applicant's claimed SEQ ID NO:1 under any hybridization conditions.

Savin describes that phytohormone ethylene is essential for senescence in plants and that ACO acts as a catalyst in the biosynthetic pathway for ethylene (p. 970, col. 1). Savin further describes the use of a cDNA clone for carnation ACO to produce a transgenic carnation plant containing an antisense ACO gene (p. 970, col. 2). Flowers resulting from plants containing the antisense ACO gene were shown to exhibit low climacteric ethylene production and a markedly delayed petal senescence. Thus, ACO influences the timing of plant senescence (death) by interfering with ethylene biosynthesis, but not by altering the formation of abscission zones, petals, or side shoots. Because Savin fails to show how the ACO gene function is related to the known functions of the *Ls* gene (e.g., SEQ ID NO:1 or fragments or derivatives thereof), Savin simply cannot anticipate applicant's presently claimed invention.

For the foregoing reasons, applicant respectfully requests that the Examiner withdraw the anticipation rejection in view of Savin, and not apply this rejection to the new claims.

35 U.S.C. §103

Claims 1, 2, 5-10, 16-22 have rejected as being allegedly unpatentable over Mandel et al. in view of McCormick et al. Applicant traverses in view of the following comments.

According to the Office Action, Mandel states that ectopically expressing AP1 is useful for reducing flowering time of agriculturally important crop plants (page 524), but the Office Action also admits that Mandel does not describe a tomato, rape, potato, or snapdragon plant, or seeds derived from transgenic plants. However, McCormick is said to describe a method to produce transgenic tomato plants. Based on these two references, the Office Action asserts that

it "would have been obvious and within the scope of one of ordinary skill in the art at the time the invention was made to use the method of accelerating flowering and petal formation of Arabidopsis plants of Mandel et al. by using other plants, such as the tomato plants of McCormick et al. One would have been motivated to accelerate flowering given it usefulness for agriculturally important crop plants, as stressed by Mandel et al. Acceleration of flowering and petal formation would also obviously be desired in the ornamental industry. One would also obviously collect seed from the transgenic plants, for the purpose of propagation" (Office Action, p. 14).

Applicant respectfully submits that even if one were to have combined Mandel and McCormick as suggested in the Office Action, for which there is not sufficient motivation, one would not have achieved the presently claimed invention, but would merely have a tomato plant that includes the AP1 gene, which is not the claimed invention.

As discussed above with respect to the alleged anticipation, Mandel states that ectopic AP1 expression converts inflorescence shoots into flowers in an Arabidopsis plant (p. 522, col. 2; Fig. 1 and Fig. 2), but this ectopic AP1 activity confers an influence only over the timing of floral expression, by reducing the time to flowering, not the flowering process itself (p. 523, col. 2). Mandel fails to suggest to one of skill in this field how AP1 gene function is related to the functions of the claimed *Ls* gene (e.g., SEQ ID NO:1 or fragments or derivatives thereof); thus there is simply no evidence that the AP1 gene is the same or even similar to applicant's claimed SEQ ID NO:1. Furthermore, since Mandel fails to disclose any nucleic acid sequence of the AP1 gene, in whole or in part, it is unclear how AP1 can hybridize (if at all) with the disclosed sequences (SEQ ID NO:1 and fragments and derivatives thereof) of the instant invention. There is also no suggestion in either Mandel or McCormick to alter the nucleic acid sequence of the AP1 gene to obtain the claimed SEQ ID NO:1.

The Office Action states that McCormick's tomato plants can be used in combination with Mandel's disclosed method for AP1-induced reductions in flowering times in the Arabidopsis plant to achieve applicant's invention. While McCormick does disclose a modified transformation regeneration system for the tomato (*L. esculetum*), there is no suggestion that this system can be used to effectively receive or express any *Ls* gene construct to modify the formation of side-shoots, petals, and abscission zones. Accordingly, one of ordinary skill in the

art could not have obtained the presently claimed invention from any combination of Mandel and McCormick.

The foregoing shows that neither Mandel nor McCormick, nor any combination thereof, renders the present claims obvious. At best, even if one were to utilize McCormick's tomato plants together with an AP1 transgene described by Mandel in an attempt to alter the timing of floral expression, one still would not have arrived at the presently claimed invention. The prior art simply lacks any teaching or suggestion to employ SEQ ID NO:1 or derivatives or fragments thereof to express an *Ls* gene construct that modifies the formation of side-shoots, petals, or abscission zones or a combination thereof. Thus, applicant respectfully requests that the Examiner reconsider and withdraw the §103 rejection in view of Mandel and McCormick, and not apply this rejection to the new claims.

Claims 1, 2, 5-13, and 18-22 have been rejected as being allegedly unpatentable over Savin in view of McCormick, taken with applicant's admitted state of the prior art. Again, applicant must traverse.

The Office Action indicates that Savin describes the use of genetic engineering to improve properties of plants, such as post harvest qualities (page 972), but concedes that Savin does not describe co-suppression, or suppression of gene expression using ribozymes, or transgenic tomato, rape, potato, or snapdragon plants. McCormick adds nothing of relevance to this rejection. The Office Action then suggests that applicant's "admitted state of the prior art teaches that suppression of gene expression using co-suppression or homologous recombination is established in the prior art (specification on page 19, lines 17-21; page 20, lines 6-10)" (Office Action, p. 15). Thus, the Office Action concludes, "[i]t would have been obvious and within the scope of one of ordinary skill in the art at the time the invention was made to use the method of suppressing ACO gene expression in carnation plants of Savin et al. in other plants, such as the tomato plants of McCormick et al. One would be motivated to do so to improve postharvest qualities of plants by genetic engineering, as asserted by Savin et al.. It also would have been obvious to use other means to suppress ACO gene expression, such as co-suppression or by homologous recombination. One would be motivated to use these techniques as they are established for use in plants, as taught by Applicant's admitted state of the prior art. One would

also obviously collect seed from the transgenic plants, for the purpose of propagation" (Office Action, p. 15-16). Applicants disagree with these numerous leaps of logic.

Savin describes that phytohormone ethylene is essential for senescence in plants and that ACO acts as a catalyst in the biosynthetic pathway for ethylene (p. 970, col. 1). Savin further describes the use of a cDNA clone for carnation ACO to produce a transgenic carnation plant containing an antisense ACO gene (p. 970, col. 2) that resulted in flowers having, inter alia, a markedly delayed petal senescence. Savin's disclosure simply does not describe or suggest any nucleotide sequence within the present claims, because there is no evidence that the ACO gene is the same or even similar to the *Ls* gene or a nucleic acid having the sequence of SEQ ID NO:1. Savin also fails to suggest any alteration in the ACO gene.

Instead, Savin describes how an ACO gene confers an influence over the timing of plant senescence (death) by interfering with ethylene biosynthesis, but not by modifying the formation of abscission zones, petals, or side shoots of these plants. Furthermore, Savin fails to suggest any nucleic acid sequence of the ACO gene, in whole or in part, thus it is unclear how ACO can hybridize (if at all) with the disclosed sequences (SEQ ID NO:1 and fragments and derivatives thereof) of the instant invention. None of the secondary references fills these gaps in Savin.

As described previously, and applicable here, while McCormick does disclose a modified transformation regeneration system for the tomato (*L. esculetum*), there is no discussion or even suggestion that this system can be used to effectively receive or express any *Ls* gene construct to modify the formation of side-shoots, petals, and abscission zones.

As for the Office Action's assertion that, "Applicant's admitted state of the prior art" renders the instant invention obvious in view of the above-described references of Savin and McCormick, applicant respectfully disagrees. Applicant's disclosure that there exist antisense or sense constructs that can be used for targeted suppression of genetic activity in plant cells fails to render obvious the use of these methods for the purposes of carrying out the present invention. Applicant merely stated that these techniques were known, providing a contextual framework that merely sets a background and nothing more.

The foregoing shows that neither Savin nor McCormick nor applicant's statements, nor any combination thereof, render the present claims obvious. Even if one were to utilize McCormick's tomato plants in combination with Savin's ACO transgene to delay plant death,

with the knowledge that there exist techniques for co-suppression or homologous recombination to suppress gene expression, one would not have arrived at the presently claimed invention. The prior art simply lacks any description or suggestion to employ SEQ ID NO:1 or derivatives or fragments thereof to express an *Ls* gene construct that modifies the formation of side-shoots, petals, and abscission zones.

In view of all the foregoing, applicant respectfully requests that the Examiner withdraw all the obviousness rejections of the claims and not apply these rejections to the new claims.

CONCLUSION

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be allowed. Enclosed is a Petition for Extension of Time and a check for the $920 fee. Please apply any other charges or credits to Deposit Account No. 06-1050, referencing Attorney Docket No. 11216-002001.

Respectfully submitted,

Date: March 13, 2002

J. Peter Fasse
Reg. No. 32,983

Fish & Richardson P.C.
225 Franklin Street
Boston, Massachusetts 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

Version with markings to show changes made

In the specification:

The paragraphs at page 12, line 23, to page 13, line 16, have been replaced with the following new paragraphs:

--[Figure 5 shows] Figures 5A and 5B show the nucleotide sequence (SEQ ID NO:1) and the amino acid sequence (SEQ ID NO:2) derived therefrom (one letter code) of the Ls wild type gene from tomato (Lycopersicon esculentum).

[Figure 6 shows] Figures 6A and 6B show the nucleotide sequence (SEQ ID NO:9) and amino acid sequence (SEQ ID NO:10) derived therefrom (one letter code) of the Ls homologous gene from potato (Solanum tuberosum).

Figure 7 shows the nucleotide sequence (SEQ ID NO:13) and the amino acid (SEQ ID NO:14) sequence derived therefrom (one letter code) of a 687 bp DNA fragment of the Ls homologous gene from Arabidopsis thaliana.

Figure 8 shows an alignment of amino acid sequences of the Ls polypeptide derived from Arabidopsis thaliana (LsAt)(SEQ ID NO:14), Lycopersicon esculentum (LsLe)(SEQ ID NO:2) and Solanum tuberosum (LsSt)(SEQ ID NO:10). The one letter code was used for amino acids. Identical amino acids are shaded in black, similar amino acids are shaded in gray. The dash (-) represents missing sequence information, a dot (.) represents an additional amino acid in a polypeptide. An asterisk (*) represents a stop codon on nucleic acid level.--

In the Figures

New Figures 5A to 8 have been enclosed with changes shown in red ink.

In the Claims:

Claims 1 to 22 have been cancelled without prejudice.

New claims 23 to 42 have been entered.